

WHAT IS CLAIMED IS:

1           1.       A system for delivering medication, comprising:  
2           an infusion pump;  
3           a control system for controlling medication delivery by the infusion pump; and  
4           a bolus estimator for estimating an appropriate amount of medication for delivery by  
5 the control system with the infusion pump, wherein estimating the appropriate amount of  
6 medication for delivery is based upon one or more settings which each vary according to a  
7 setting profile.

1           2.       The system of claim 1, wherein the control system controls medication  
2 delivery according to one or more medication delivery profiles.

1           3.       The system of claim 2, wherein the one or more medication delivery profiles  
2 comprises the appropriate amount of medication estimated by the bolus estimator.

1           4.       The system of claim 1, wherein the one or more settings are selected from the  
2 group including target blood glucose, carbohydrate ratio and insulin sensitivity.

1           5.       The system of claim 1, wherein the setting profile for at least one of the one or  
2 more setting includes a value which varies according to a schedule.

1           6.       The system of claim 1, wherein the control system is programmed to control  
2 medication delivery from a source selected from the group including an RF programmer, a  
3 communication station and direct input.

1           7.       The system of claim 1, wherein the bolus estimator estimates the appropriate  
2 amount of medication based upon one or more event markers stored in a memory.

1           8.       The system of claim 7, wherein the one or more event markers track events  
2 which affect medication need.

1           9.       The system of claim 7, wherein the one or more event markers are selected  
2 from the group comprising a meal marker, a snack marker, a high blood glucose marker, a  
3 low blood glucose marker, an exercise marker, an illness marker and a stress marker.

1           10.    The system of claim 1, wherein the setting profile is entered with a graphical  
2 programming interface.

1           11.    The system of claim 10, wherein the graphical programming interface  
2 includes a series of discrete divisions, each having a setting value and the setting profile is  
3 programmed by adjusting the setting value of selected ones of the discrete divisions in  
4 sequence such that any setting value of each prior discrete division is unchanged and any  
5 setting value of each subsequent discrete division is automatically adjusted to the value the  
6 selected ones of the discrete divisions.

1           12.    A method of delivering medication, comprising the steps of:  
2 controlling medication delivery by an infusion pump with a control system;  
3 estimating an appropriate amount of medication for delivery by the control system  
4 with the infusion pump, wherein estimating the appropriate amount of medication for  
5 delivery is based upon one or more settings which each vary according to a setting profile.

1           13.    The method of claim 12, wherein the step of controlling includes controlling  
2 medication delivery according to one or more medication delivery profiles.

1           14.    The method of claim 13, wherein the one or more medication delivery profiles  
2 includes the appropriate amount of medication estimated by the bolus estimator.

1           15.    The method of claim 12, wherein the one or more settings are selected from  
2 the group including target blood glucose, carbohydrate ratio and insulin sensitivity.

1           16.    The method of claim 12, wherein the setting profile for at least one of the one  
2 or more setting includes a value which varies according to a schedule.

1           17.    The method of claim 12, wherein the control system is programmed to control  
2 medication delivery from a source selected from the group including an RF programmer, a  
3 communication station and direct input.

1           18.    The method of claim 12, wherein the bolus estimator estimates the appropriate  
2 amount of medication based upon one or more event markers stored in a memory.

1           19.     The method of claim 18, wherein the one or more event markers track events  
2     which affect medication need.

1           20.     The method of claim 18, wherein the one or more event markers are selected  
2     from the group comprising a meal marker, a snack marker, a high blood glucose marker, a  
3     low blood glucose marker, an exercise marker, an illness marker and a stress marker.

1           21.     The method of claim 12, wherein the setting profile is entered with a graphical  
2     programming interface.

1           22.     The method of claim 10, wherein the graphical programming interface  
2     includes a series of discrete divisions, each having a setting value and the setting profile is  
3     programmed by adjusting the setting value of selected ones of the discrete divisions in  
4     sequence such that any setting value of each prior discrete division is unchanged and any  
5     setting value of each subsequent discrete division is automatically adjusted to the value the  
6     selected ones of the discrete divisions.

1           23.     A system for delivering medication, comprising:  
2             an infusion pump; and  
3             a control system for controlling medication delivery by the infusion pump;  
4             wherein the control system includes a suspend function for temporarily suspending  
5     medication delivery by the infusion pump.

1           24.     The system of claim 23, wherein controlling medication delivery by the pump  
2     includes using two or more wave profiles and wherein the control system includes a suspend  
3     function for separately suspending each of the two or more wave profiles.

1           25.     The system of claim 24, wherein the control system further includes a resume  
2     function for selectively restarting each of the more than one wave profile.

1           26.     The system of claim 24, wherein the control system further includes a  
2     compensating function for delivering a compensating bolus to account for any suspended  
3     wave profile.

1           27.     The system of claim 24, wherein the suspend function further includes a full  
2 suspend function for directly suspending all delivery of medication.

1           28.     The system of claim 24, wherein the more than one wave profiles are selected  
2 from the group including a square wave bolus profile, a dual wave bolus profile and a basal  
3 profile.

1           29.     The system of claim 23, wherein the suspend function includes a menu system  
2 for selecting a period of time for temporarily suspending medication delivery by the infusion  
3 pump.

1           30.     The system of claim 29, wherein the menu system includes an array of fixed  
2 periods from which to select as the period of time for temporarily suspending medication  
3 delivery.

1           31.     The system of claim 29, wherein the menu system includes one or more  
2 increment periods increment the period of time for temporarily suspending medication  
3 delivery.

1           32.     The system of claim 29, wherein the menu system includes a specified time of  
2 day to select as an end of the period of time for temporarily suspending medication delivery.

1           33.     The system of claim 29, wherein after the period of time for temporarily  
2 suspending medication delivery by the infusion pump has transpired the pump resumes  
3 medication delivery.

1           34.     The system of claim 23, wherein the suspend function includes a block  
2 function for suspending delivery of medication after a potentially harmful amount of  
3 medication is requested by a user and a warning to the user of the potentially harmful amount  
4 of medication.

1           35.     The system of claim 34, wherein the potentially harmfully amount of  
2 medication is an unusually large bolus.

1           36.     The system of claim 34, wherein the potentially harmful amount of  
2 medication is a bolus requested too soon after a previous bolus is delivered.

1           37.     The system of claim 34, wherein the potentially harmful amount of  
2 medication is too low a total medication dose for the day.

1           38.     The system of claim 34, wherein the block function is triggered after a  
2 medication measurement integrated over an integration period exceeds a target value.

1           39.     The system of claim 38, wherein the block function is alternately triggered  
2 because a second medication measurement integrated over a simultaneous and overlapping  
3 integration period exceeds the target value.

1           40.     The system of claim 38, wherein the integration period is subdivided into a  
2 plurality of subperiods and each of the plurality of subperiods is associated with a subtotal  
3 representing medication delivered and an oldest subtotal of the subperiods is replaced by a  
4 newest subtotal of the subperiods.

1           41.     A method of delivering medication, comprising:  
2 controlling medication delivery by an infusion pump with a control system; and  
3 temporarily suspending medication delivery by the infusion pump with a suspend  
4 function of the control system.

1           42.     The method of claim 41, wherein the step of controlling medication delivery  
2 by the pump includes using two or more wave profiles and wherein the control system  
3 includes a suspend function for separately suspending each of the two or more wave profiles.

1           43.     The method of claim 42, further including selectively restarting each of the  
2 more than one wave profile with a resume function of the control system.

1           44.     The method of claim 42, further including delivering a compensating bolus to  
2 account for any suspended wave profile with a compensating function of the control system.

1           45.     The method of claim 42, wherein the suspend function further includes a full  
2 suspend function for directly suspending all medication delivery.

1           46.     The method of claim 42, wherein the more than one wave profiles are selected  
2 from the group including a square wave bolus profile, a dual wave bolus profile and a basal  
3 profile.

1           47.     The method of claim 41, wherein the suspend function includes a menu  
2 system for selecting a period of time for temporarily suspending medication delivery by the  
3 infusion pump.

1           48.     The method of claim 47, wherein the menu system includes an array of fixed  
2 periods from which to select as the period of time for temporarily suspending medication  
3 delivery.

1           49.     The method of claim 47, wherein the menu system includes one or more  
2 increment periods increment the period of time for temporarily suspending medication  
3 delivery.

1           50.     The method of claim 47, wherein the menu system includes a specified time  
2 of day to select as an end of the period of time for temporarily suspending medication  
3 delivery.

1           51.     The method of claim 47, wherein after the period of time for temporarily  
2 suspending medication delivery by the infusion pump has transpired the pump resumes  
3 medication delivery.

1           52.     The method of claim 41, wherein the step of temporarily suspending includes  
2 suspending delivery of medication with a block function of the control system after a  
3 potentially harmful amount of medication is requested by a user and a warning to the user of  
4 the potentially harmful amount of medication.

1           53.     The method of claim 52, wherein the potentially harmfully amount of  
2 medication is an unusually large bolus.

1           54.     The method of claim 52, wherein the potentially harmful amount of  
2 medication is a bolus requested too soon after a previous bolus is delivered.

1           55.     The method of claim 52, wherein the potentially harmful amount of  
2 medication is too low a total medication dose for the day.

1           56.     The method of claim 52, wherein the block function is triggered after a  
2 medication measurement integrated over an integration period exceeds a target value.

1           57.     The method of claim 56, wherein the block function is alternately triggered  
2 because a second medication measurement integrated over a simultaneous and overlapping  
3 integration period exceeds the target value.

1           58.     The method of claim 56, wherein the integration period is subdivided into a  
2 plurality of subperiods and each of the plurality of subperiods is associated with a subtotal  
3 representing medication delivered and an oldest subtotal of the subperiods is replaced by a  
4 newest subtotal of the subperiods.

1           59.     A system for delivering medication, comprising:  
2 an infusion pump including an alarm to indicate status of the infusion pump; and  
3 a control system for controlling medication delivery by the infusion pump;  
4 wherein the control system includes an alarm profile function for programming a  
5 variable alarm volume of the alarm.

1           60.     The system of claim 59, wherein the alarm profile function varies the variable  
2 alarm volume according to a schedule.

1           61.     The system of claim 59, wherein the variable alarm volume is set by the user.

1           62.     A method of delivering medication, comprising the steps of:  
2 controlling medication delivery by an infusion pump with a control system wherein  
3 the infusion pump includes an alarm to indicate status of the infusion pump; and

4           activating the alarm according to an alarm profile function when a potentially harmful  
5 condition occurs in controlling medication delivery, wherein the alarm profile function  
6 includes programming a variable alarm volume of the alarm.

1           63.     The method of claim 62, wherein the alarm profile function varies the variable  
2 alarm volume according to a schedule.

1           64.     The method of claim 62, wherein the variable alarm volume is set by the user.

1           65.     A system for delivering medication, comprising:  
2 an infusion pump; and  
3 a control system for controlling medication delivery by the infusion pump including a  
4 dual wave bolus delivery function;  
5 wherein the control system comprises a simplified menu for controlling the dual wave  
6 bolus delivery function.

1           66.     The system of claim 65, wherein the control system further includes a  
2 conventional menu for controlling the dual wave bolus delivery function and the simplified  
3 menu and the conventional menu are alternately selected.

1           67.     The system of claim 65, wherein the simplified menu includes a single entry  
2 of a total medication volume, the single entry being divided by a preset ratio into a first wave  
3 bolus and a second wave bolus and delivered with a preset delay time between the first wave  
4 bolus and the second wave bolus.

1           68.     The system of claim 67, wherein the preset ratio and preset delay time are  
2 default values set in a pump setup menu.

1           69.     The system of claim 68, wherein the control system further includes one or  
2 more additional delivery functions and a default delivery mode is selected in the pump setup  
3 menu from the dual wave bolus delivery function and the one or more additional delivery  
4 functions.

1           70.     The system of claim 69, wherein the additional delivery functions include a  
2 square wave bolus delivery function and basal delivery function.



1           71.     A method of delivering medication, comprising the steps of:  
2           controlling medication delivery by an infusion pump with a control system including  
3     a dual wave bolus delivery function; and  
4           providing a simplified menu for controlling the dual wave bolus delivery function.

1           72.     The method of claim 71, wherein the control system further includes a  
2     conventional menu for controlling the dual wave bolus delivery function and further includes  
3     the step of alternately selecting between the simplified menu and the conventional menu.

1           73.     The method of claim 71, wherein the simplified menu includes a single entry  
2     of a total medication volume, the single entry being divided by a preset ratio into a first wave  
3     bolus and a second wave bolus and delivered with a preset delay time between the first wave  
4     bolus and the second wave bolus.

1           74.     The method of claim 73, wherein the preset ratio and preset delay time are  
2     default values set in a pump setup menu.

1           75.     The method of claim 74, wherein the control system further includes one or  
2     more additional delivery functions and a default delivery mode is selected in the pump setup  
3     menu from the dual wave bolus delivery function and the one or more additional delivery  
4     functions.

1           76.     The method of claim 75, wherein the additional delivery functions include a  
2     square wave bolus delivery function and basal delivery function.

1           77.     An system for locating a lost medical device, comprising:  
2           a first device of an infusion device and RF remote pair including a transmitter; and  
3           a second device of the infusion device and RF remote pair including a receiver and a  
4     speaker;  
5           wherein the transmitter induces the receiver to direct an audible signal from the  
6     speaker to allow a user to locate the second device.

1           78.     The system of claim 77, wherein the first device is the RF remote.

1           79.     The system of claim 77, wherein the first device is the infusion device.

1           80.     An method of locating a lost medical device, comprising:  
2           transmitting a signal from a transmitter of a first device of an infusion device and RF  
3     remote pair;  
4           receiving the signal at a receiver of a second device of the infusion device and RF  
5     remote pair; and  
6           directing an audible signal from the speaker to allow a user to locate the second  
7     device.

1            81.     The method of claim 80, wherein the first device is the RF remote.

1            82.    The method of claim 80, wherein the first device is the infusion device.